DOES AGRICULTURE NEED INVESTMENT? NIGERIA AS A CASE STUDY

YAKUBU ADO[1,2]*, SHUKURAT ADUNNI SANNI[1], ABUBAKAR ABDULLAHI HASSAN[1], DAVID FUNSHO OMOKORE[1], OLADIMEJI YUSUF USMAN[1], FEHER ANDREA[2], PASCALAU RAUL[3]

[1]Ahmadu Bello University/Faculty of Agriculture/Department of Agricultural Economics, Samaru Zaria, Nigeria

[2]Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara/Faculty of Management and Rural Tourism, Romania

[3]Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara/Faculty of Agriculture, Romania

*Corresponding author's e-mail: adyakubu@abu.edu.ng

Abstract: *Nigeria is blessed with large tracts of arable land which makes agriculture an important sector of the economy with a high potential for employment generation, food security, and poverty reduction. The study explores the need for investment in the agricultural sector in Nigeria. Agriculture holds the largest contribution to the Nigerian economy with recent indicators for development through short to long-term approach models. The nation's component of economic growth is driven by agriculture with GDP growth of 25% and this lies in the role of teaming small scale farmers which account for about 80% of food production and 48% of the labor force in the country. Farmers and farming firms are partners in the supply chain, and their relationship assuages intensive research review to ascertain the level of investment and promote policies that will answer the need for investment in the agricultural sector for overall economic growth and development. Without agricultural products to trade with other countries, trade deficits would occur. The agri-food system investment is an extremely complicated scheme that constantly changes to meet current consumer demands. It also provides food and fiber for both domestic and world markets. Unfortunately, agriculture poses a particular risk, thus building an investment model with emphasis on small-scale farmers, as stakeholders in the genuine economic value chain in agriculture are essential to feed the nation's constantly growing estimated population of 216,746,934 million people with a 2.53% increase rate from the previous 2021 year. The level of investment in the agricultural subsector by far promotes national and international policies which increase the positive role and legitimate interest of small-scale farmers to improve indigenous technology via climate change mitigation and at least operate with relatively little government intervention. Investment in small-scale agriculture will enhance agricultural growth in Nigeria where there is an imminent fear of food insecurity in the current oil-driven economy.*

Keywords*: Investment, small-scale farmers, sustainable development, Nigeria*

INTRODUCTION

The major contribution of the Nigerian economy with recent indicators for development through a short to long term approach model as a component of economic growth is driven by agriculture following oil production with GDP growth of 25% in 2022, out of a total GDP net worth of $432.30billion, positioned at 0.38% of the global economy and this lies in the role of the majority of small-scale farmers, account for about 80% of food production, 48% of the labor force in the country [17, 23, 26]. According to the National Population Commission, an estimated population of 216,746, 934 million population with an increase of 2.53% growth rate in 2022 against the previous year with 211,400,708 people, making it among the top world populated countries [27]. The population density was reported at 226 sq. Km in 2020 [25] leaves a huge demand gap issues not appropriately addressed.

Agriculture as a source of livelihood, food security, income generation, employment creation rate of 33.3%, and poverty alleviation both at micro and macro level parts of the rural development component [7], has no magic intricate but rather a multilateral effort of stakeholders on the production-marketing and consumption system that start from multiple

farm activities, inputs supply and services by the farmers involved. Nevertheless, these have not been fully subjugated to feed the nation's constantly growing estimated population of about these million people [25]. Farmers and farming firms are partners in the supply chain, and their relationship assuages intensive research review to ascertain the level of investment and promote policies that will answer the need for investment in the agricultural sector for overall growth and economic development. Without agricultural products to trade with other countries, even higher trade deficits would occur. The developed and developing nations of Europe and the American economy are also affected by agriculture, and remain resilient and continue to be requisite for crucial food security sustainability to feed the teeming population which is inextricably connected to investment. On the whole, the economy and well-being of individuals largely depend on agricultural productivity.

The current production often infers negative future outcomes in terms of cost structure, and business confidence index and combines diverse commercial enterprises, using a heterogeneous resource combination of land, labor, materials, capital, and technology. The agri-food system investment is an extremely large, complicated one that is constantly changing to meet current consumer demands and provide food and fiber for both domestic and world markets which are economic realities facing the agriculture value chain that transfer back down to the production level [7]. Unfortunately, agriculture poses a particular risk, therefore building a business model that includes farmers, particularly small-scale farmers, as stakeholders in the genuine economic value chain in agriculture via research and development intervention with progressive realization of sustainable economic development cannot be overemphasized through Government policies support risk factors and price volatility management that requires significant changes. The level of investment in agricultural subsectors promotes national, regional, and international policies that increase the positive role and legitimate interest of small-scale farmers to improve indigenous technology via climate change mitigation and, at least, operate with relatively little government intervention [15, 16].

MATERIALS AND METHODS

The materials that were used to present this research work emanated from various sources of previous kinds of literature studies: articles, reports, and other secondary sources of information include the National Bureau of Statistics (NBS), Statista Research Department, FAOSTAT, General Household Survey in Nigeria (LSMS Wave 4) 2018–2019, World Bank 2020 Report, Federal Ministry of Agriculture and Rural Development among others.

The study takes advantage of recent nationally representative data in Nigeria to put this discussion on a more secure empirical footing in identifying and addressing the gaps in the current agricultural development level.

RESEARCH RESULTS

Nigeria is separated as shown in figure 1 into 36 States including FCT, Abuja with various ethnic groups and tribes in the six geopolitical zones of the country; North Central, North East, North West, South East, South-South, and South West Zones [7]. The country has an estimated population of 216,746, 934 million population with an increase of 2.53% growth rate in 2022 against the previous year(s) with 211,400,708 people, making it among the top world populated countries [27]. It has a geographical land area of 983,213km^2, with cultivated agricultural land of 70.8 million hectares out of which over 28 million hectares (39.27%) are meadows and pastures area and about 43 million hectares (60.73%) devoted to arable crops such as; maize, sorghum, rice, millet, cassava, yam, soya beans, and cowpea

being the major stable crops cultivated with a low prevalence of irrigation farming activities [24] as shown in table 1. Crop and livestock production are key economic activities for about 80% of the active total population while the population density was 220.45 km^2 in 2022, a slight decrease from 226 km^2 in the last year [25]. Owing to the high population growth rate, the pressure will be kept increasing to reach over 400 million people by the 2050 year as reported by World Bank (2019) [28]), consequently creating huge food demand and supply gaps that require intensification of investments in the agri-food system.

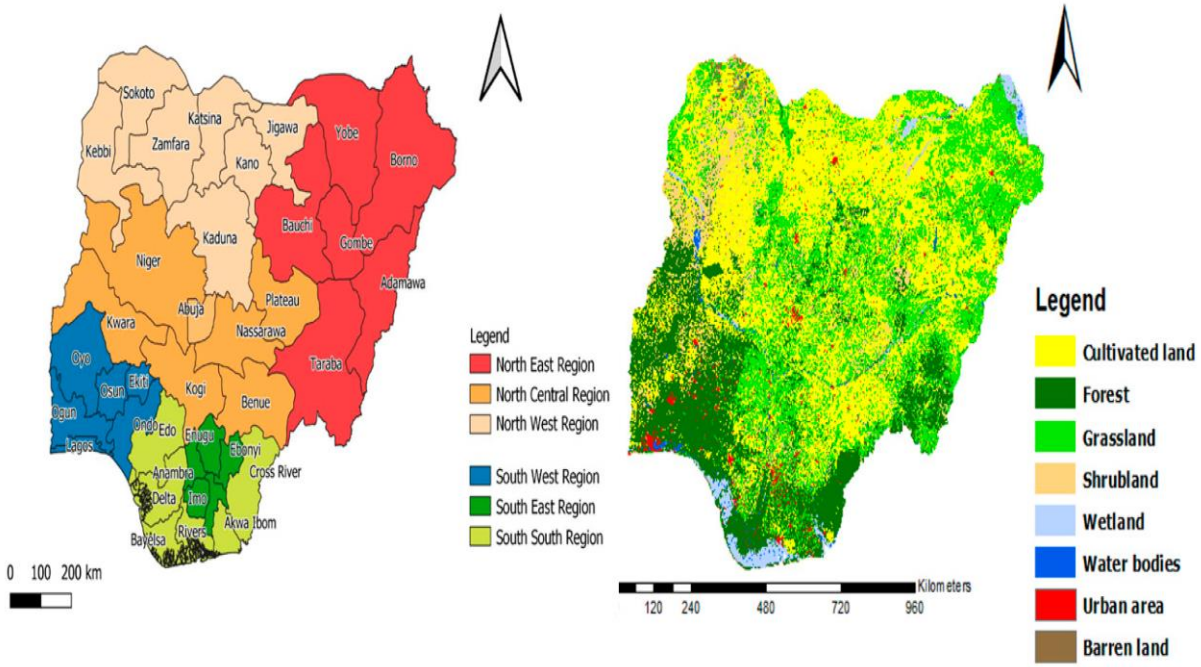

Figure 1. Map of Nigeria showing 36 Administrative States and Diversity

Nationally, the average household size is around 5.5 persons, three northern zones have larger family sizes than those in the three southern zones, whereas urban and rural household sizes are around 4.8 and 5.9 persons respectively. The Northeast zone with the highest household size of about 8 persons, the Northwest zone is second with 7.4 persons and the least, Southwest with 3.2 persons per household in the country as shown in Table1. The average dependency ratio in the country is 1.0, and North West Zone and North East record the highest with 1.3, while South West has the lowest average at 0.7. Urban and rural dependency ratios are 0.9 and 1.1, respectively [24]. These have a straight impact on labor availability which can be used for diverse agricultural activities and significant investment.

Agriculture in the two parts of the country; the North with 54% and the South with 46% of engagements is still not enough to feed the nation's continuously growing population of more than 70% farmers in subsistence agriculture [21]. Farming is one of the oldest businesses with enormous importance but lacks attainment of optimum production level. World Bank (2016), asserted that 90% of agricultural activities in Nigeria are the output of inefficient small-scale farmers' efforts, notably using an outmoded land tenure system that constrained access to land having about 1.8 ha which the majority (63%) acquired through inheritance and happens to be the main means of farmland acquisition with few agricultural lands have land titles, on average, 10.8% of male and 3.8% of female plot managers own land from outright purchases and poses land titles [23].

Table 1.

Explorations of Agricultural Lands and Average Holdings Nigeria, 2022

Zones	Land Area in ha	Arable Land in ha	Family Size in No.	Ethnic Tribes
North-Central	24,242,500	12,230,953	5.7	Berom, Igala, Tiv & others
North-East	27,239,500	11,880,400	7.9	Hausa/Fulani
North-West	23,985,600	13,271,431	7.4	Hausa/Fulani
South-East	2,952,500	1,406,480	4.3	Igbo
South-South	8,458,700	2,507,660	4.9	Bini, Ibibio, Ijaw & others
South-West	7,966,500	2,443540	3.2	Yoruba
Nigeria	**98,321,300**	**43,739,462**	**5.5**	**Hausa-Yoruba & Igbo**

Source: [17, 21, 24]

Smallholder farmers account for about 84% of the landholdings of less than 2ha, continuously being the active segment that operates 75% of agricultural land, and provides major food commodities, despite being one of the poorest populations in the world [11, 18]. The smallholder farmers face difficulties in raising their funds to invest on their farms and connect to the markets with which they heavily rely on limited savings that lead to lower output, persistent income inequality, and lower economic growth.

The country's agricultural production area harvested for cereals in 2020 was 20,191,574 million ha, achieving a cereal yield of 14,200 metric tons. Crop production dominates the sector, accounting for 22.6% of GDP alongside livestock (1.7%), fisheries (0.5%) and forestry (0.3%) [26] as shown in Figure2.

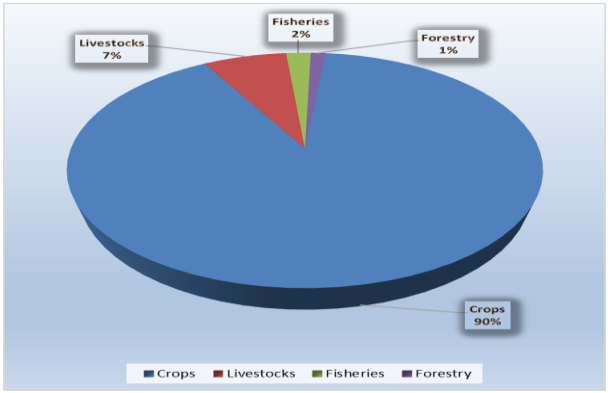

Figure 2. Agricultural sector's contribution to Nigeria's GDP (2021)

The finding in Table 1 below indicated that, nationally, about 70.3% of households engaged in crop farming activities, and 46.9% of households owned and raised livestock. The major crops cultivated in the country include cassava (46.2%), maize (49.7%), guinea corn (29.6%), yam (25.8%), and beans (20.9%). Goats (64.7%) and chickens (53.8%) are the most commonly owned animals in the country. Livestock is commonly used as savings/insurance (20.7%) or sold alive (62.1%). Only 20.7% of households participate in extension services. 50% of the households in Nigeria cultivate basic crops such as Maize, Sorghum, Cassava and Rice crops and a total output of about 50% of cereal production is under 45% of total agricultural land by sorghum [3, 17, 25]. Over the past three years, palm oil crop production accounts for over 1 million metric tons which indicates a significant improvement. These have made the country to be one of the world's producers of agricultural food commodities. Rice cultivation is significantly increasing at an increasing rate owing to the banned on imports since 2019, its production in 2017 is at 3.7metric tons, increase to 4.0metric tons in

2018 and rose to over 5.0metric tons in 2021, but the statistical estimate of rice consumption in Nigeria is about 6.7metric tons per year and only despite only 57% is from the domestic production, leaving the demand gap of about 3metric tons in the hand of importers who play illegal supply [10, 19]. Meanwhile, Sorghum accounts for 6.9 million metric tons with about 5.4 million ha, and cassava production was estimated at 59 million metric tons in 2017, resulting in about 20% world's contribution to cassava production by the country.

Saweda et al, (2022) asserted that with rapid increases in poultry industries and urbanization, consumption has also increased significantly, along with the higher increase in feeds used especially maize grain with about 600% (from 300thousand tons to 1.8metric tons) during the 2019 year. Fishing is a less pronounced activity in Nigeria under lakes and rivers with only about 3% of household engagements mostly from Southern parts of the country [5]. This implies that sources of income generation from the sector of agriculture are enormous with value added enterprises, therefore improvements in innovative technologies and modern farming systems will lead to massive food production in the country. Hence, the assessment of institutional and socio-economic structure by stakeholders in the agricultural value chain operates becomes important.

Table 2.

Agricultural production level in six geopolitical zones of Nigeria

Zones	Any Crop Farming	Any Livestock	Crop Farming Only	Livestock Only	Both	Crop Farming or Livestock	Neither	Fishing
North Central	75.8	60.4	21.6	6.3	54.1	82	18	3.2
North East	83.6	68.6	23.4	8.4	60.2	92	8	1.6
North West	82.9	69.3	18.9	5.4	63.9	88.3	11.7	3.8
South East	72.8	44.4	30.7	2.2	42.1	75	25	0.3
South-South	68.9	18.4	52	1.5	16.9	70.4	29.6	7.3
South West	39.5	23.4	26.5	10.4	13	49.9	50.1	0.3
Urban	33.5	26.7	17.4	10.6	16.1	44.1	55.9	0.7
Rural	87	56.1	34.1	3.2	52.9	90.3	9.7	4
NIGERIA	**70.3**	**46.9**	**28.9**	**5.6**	**41.4**	**75.8**	**24.2**	**2.9**

Source: FAOSTAT, 2020 [20]

Households in Nigeria have the most common traditional practices, using locally production inputs, making the sector to be underdeveloped and heavily dependent on the primary agronomic practices and less access to innovations. Male-headed households utilize considerably more farm inputs than female-headed households, except for improved seeds and hired labor [11]. However, agricultural productivity in Sub-Saharan Africa has continued to fall short of expectations and outputs must improve by more than double to meet the current demand gap [18]. Chronic problems of developing economies are the slower growth in the production and market forces fluctuations in output [6], thus causing food crises and continues instability of the economy. Therefore, addressing such consequences for growth in developing economies consciously require more investment in the productive agricultural sector for farmers' capacity building.

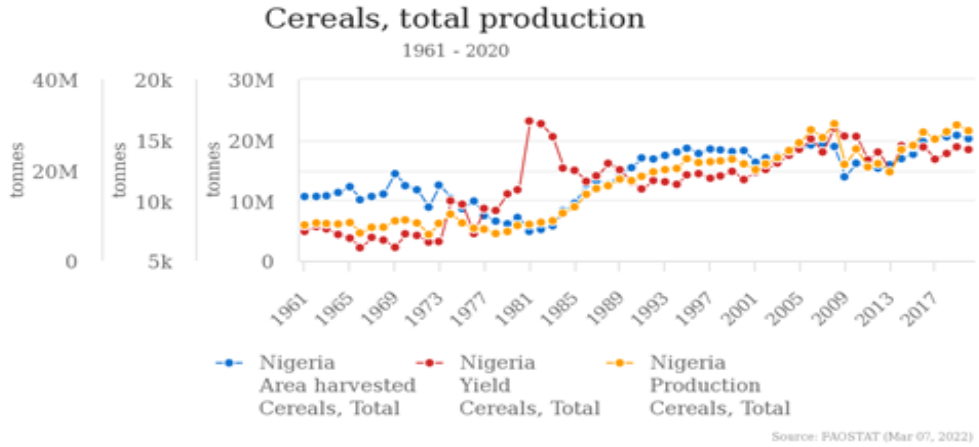

Figure 3. Nigeria's total cereal production, 1961-2020

Food and Agriculture Organization of the United Nations Statistics Division [21], reported that the food demand and prices are on the increase, due to population pressure that is forecasted to reach about a 400million people, product consumption will keep growing and predicts over 260% for meat, milk and 250% for eggs in Nigeria by the 2050 year. The current agricultural investment situation has negative implications for food security amid driven rising hunger and poverty level among more than 20% of the population in the country [3, 13, 24]. These have triggered the country to be ranked by the global hunger index with 41% of the population below the poverty line of international standard, spread across by 75% in the North and 25% in the Southern parts of the country [28]. These have indicated the North West Zone is undernourished, the prevalence of undernourishment average was 14.6% from 2018 to 2020, and the Number of moderately and severely food insecure people of 116 million at about 57% of the total population can only be salvage through more commitment to food production that is inadequate [25].

The utilization of land and its acquisition, low irrigation activities, adoption of technological research output, financial access, and input cost among others left the productivity in a lower economic fate [4, 17]. The objectives geared toward sustainable development can only be attained if the well-being of the populace improved, therefore a step towards an increase in investment decisions in agricultural production may be a significant economic development.

Agriculture contributes to global Greenhouse Gas (GHG) emissions due to the constant production of methane (CH4), ammonia (NH3), and nitrous oxide (N2O) which are major contributors to climate change, and Anthropogenic emissions of N2O are primarily from agriculture sources [21]. The structure and trajectory of growth in the maize poultry value chain could also have a significant effect on the environment and future contribution to GHG emissions. In Nigeria, the major contributors to GHG emissions come from land-use change, particularly deforestation and land clearing for agriculture and development and climate change has become one of the key divisors that are redefining the global food equation and thus having so much impact on the food security of particularly developing nations [4]. Natural disasters and climate variability constitute other key factors making people from less developed nations vulnerable to food insecurity [14]. The impacts of such phenomena as drought, flood, and landslide are more pronounced in regions where agriculture highly depends on rainfall [1] while drought and landslide constitute a major threat to food availability, excessive rain or flood significantly impact hike in food prices.

Investment in agriculture requires significant changes in climate change, agricultural landscaping, the land tenure system, financial capital, innovative technologies investment, Government policies support-risk factors with the current degree of production and price volatility where current production infers future outcome [2, 7]. The cost structure of the land, labor, and production management practices are economic realities of the value chain that transfer back to the production level, building the ability to shield and counterbalance externally driven costs with market access and linkages.

Owing to the production economic values, Nigeria keeps the lead in various products such as sorghum with 6.8million metric tons, palm kernel and palm oil of 330 and 1.3 million metric tons respectively, millet of about (2 million metric tons) and Soyabean with 467,000 metric tons [12]. Crop production accounted for 89.7% of overall nominal sector growth in the fourth quarter of 2020 and 91.4% for the full year, making it the largest segment. According to the World Bank, the sector accounted for around 35% of employment and income driving source in 2019, making it the country's largest employer [28]. The development and dissemination of novel agricultural technologies are seen as a way of enhancing productivity on the world's 475 million small farms, many of which are in low- and middle-income countries [6]. Development experts generally agree that the responsible development of agriculture is a key element in addressing, at least, sustainable development goals. Several studies have been conducted on various aspects of the dissemination and adoption of productivity-improving technologies and integrated management practices in Nigeria, especially in the northwest zone of the country [18].

Market and market linkages have continued to increase spread to rural areas [18], the surplus of trade stood at ₦83,975.80 million and foreign direct investment of $530.60 billion in 2019 [12]. Annual export loss of over 10million dollars with per capita of less than 1% was estimated in the past 20 years, 58% decline in self-sufficiency level [9]. Food processing as a means of value addition reduce wastage and create the utility of satisfaction to the consumers, any significant increase in investment in the agri-food sector will help to make food available to human [5, 8, 20]. Sustainability of agricultural investments and marketable product growth value addition will skyrocket development objectives in the country trades system for many decades.

Women's gender in agriculture is quite needed with more support of similar access, then the production yield can increase by at least 20-30% and output of about 2.5-4% in the developing countries like Nigeria. This among other strategic investments will help in boosting food supply along agricultural priority value chains [10, 22].

CONCLUSIONS

The business confidence index of Nigeria in 2019-2020 indicates that there is a statistically negative decline in the year 2020 average of -6% points compared to previous years of accounting with 28.34% index point. This has shown an unpleasant environment that puts the economy backward, therefore improvement in the future depends on investment in agriculture to decide the food system.

Enormously, an increase in agricultural production and labor productivity required a reduction of larger populace movement out of rural areas by investing more in smallholder farmers, especially youth and women as the main aim for food security, income growth, and development.

Despite the contribution of agriculture to the economy, the sector faces many challenges significantly social-economic-environmental sustainability, deteriorating budgetary allocation to agriculture, limited financing, and the recent Covid 19 pandemic, among others. These have converted the conditions and environment in which farmers and

other stakeholders in the agricultural sector operate. Our research argued for flexible approaches to various modes of production, institutional and policy frameworks needed to allow for dynamic agricultural investment.

The growing dynamics of these problems have muffled agricultural production levels, reduced sector GDP increase and imports rise to 3.35trillion multipliers effect to exports value of 803 billion in 2020 [25]. Given this, a routine diagnosis of the country's agricultural level development is important in identifying the key challenges and the opportunities in the various sub-sectors of agriculture for improving agricultural production, food, and nutrition security.

The study takes advantage of recent nationally representative data in Nigeria to put this discussion on a more secure empirical footing in addressing the gaps in the current agricultural level of development in the country. The commercialization of the agri-food system amidst growing emphasis on production, processing, and utilization becomes necessary, therefore examining investment level prospects, to help in combating hunger, raising income and food security among vulnerable groups, including women and infants.

REFERENCES

[1]. AMINU R.O., WEI S., AROWOLO A.O., IBRAHIM S.B., 2021, Socioeconomic Determinants of Income Inequality Among Smallholder Arable Crop Farmers in Nigeria, The Journal of Developing Areas, vol. 55(3), pp. 175-188

[2]. FEHER A., 2017, Improvement of Financial Relationships within the Romanian Rural Area, Lucrari Stiintifice Management Agricol, vol. 19(2), pp. 193-198

[3]. ISMAILA U., GANA A., TSWANYA N., DOGARA D., 2010, bowls of cereal production in Nigeria: Problems, constraints and opportunities for betterment, African Journal of Agricultural Research, vol. 5(12), pp. 1341-1350

[4]. LIVERPOOL-TASIE L.S., PUMMEL H., TAMBO J.A., OLABISI L.S., OSUNTADE O., 2020, Perceptions and exposure to climate events along agricultural value chains: Evidence from Nigeria, Journal of environmental management, vol. 264, 110430

[5]. LIVERPOOL-TASIE L.S.O., SANOU A., TAMBO J.A., 2019, Climate change adaptation among poultry farmers: evidence from Nigeria, Climatic Change, vol. 157(3), pp. 527-544. https://doi.org/10.1007/s10584-019-02574-8

[6]. LOWDER S.K., SKOET J., RANEY T., 2016, The number, size, and distribution of farms, smallholder farms, and family farms worldwide, World Development, vol. 87

[7]. MUYANGA M.C., AROMOLARAN A., LIVERPOOL-TASIE S., JAYNE T.S., AWOKUSE T., 2019, Changing Farm Structure and Agricultural Commercialization in Nigeria: Livelihoods and Policy Implications, APRA Working Paper, 26, 2019. https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/14576

[8]. OKROS A., PÎRŞAN D., BORCEAN A., MIHUT C., DRAGROSLAV M.V., 2019, Intensive Agriculture Management in Winter Wheat and Maize in the Northwest Area of the Banat Region, Romania, International Multidisciplinary Scientific GeoConference: SGEM, 19(4.1), pp. 977-984. https://doi.org/10.5593/sgem2019/4.1/S19.124

[9]. OLABISI M., OBEKPA H.O., LIVERPOOL-TASIE L.S.O., 2021, Is growing your food necessary for dietary diversity? Evidence from Nigeria, Food Policy, 104, 102144. https://doi.org/https://doi.org/10.1016/j.foodpol.2021.102144

[10]. OLADIMEJI Y., 2017, Food production trend in Nigeria and Malthus theory of population: empirical evidence from rice production, Nigerian Journal of Agriculture, Food and Environment, vol. 13(1), pp. 126-132

[11]. OLADIMEJI Y.U., GALADIMA S.A., HASSAN A.A., SANNI A.A., ABDULRAHMAN S., EGWUMA H., OJELEYE A.O., YAKUBU A., 2019, Risk analysis

in fish farming systems in Oyo and Kwara States, Nigeria: A prospect towards improving fish production, Animal Research International, vol. 16(1), pp. 3226-3237
[12]. REARDON T., LIVERPOOL-TASIE L.S.O., MINTEN B., 2021, Quiet Revolution by SMEs in the midstream of value chains in developing regions: wholesale markets, wholesalers, logistics, and processing, Food Security, vol. 13(6), pp. 1577-1594
[13]. RUJESCU C., FEHER A., RAICOV M., SALA F., 2017, Comparative study on the evolution of average cereals production in the European Union, Lucrari Stiitifice Management Agricol, vol. 19(1), pp. 101-106
[14]. SCHMITT OLABISI L., UGOCHUKWU ONYENEKE R., PRINCE CHOKO O., NWAWULU CHIEMELA S., LIVERPOOL-TASIE L.S.O., IFEYINWA ACHIKE A., AYO AIYELOJA A., 2020, Scenario Planning for Climate Adaptation in Agricultural Systems, Agriculture, vol. 10(7), 274. https://www.mdpi.com/2077-0472/10/7/274
[15]. SHUAIBU H., YAKUBU A., HASSAN A.A., EMMANUEL B.H., 2020, Peri-Urban Farming for Improved Income: Case of Fluted Pumpkin Production in Sabon Gari Local Government Area of Kaduna State, Nigeria, Ife Journal of Agriculture, vol. 32(3), pp. 60-68. http://ija.oauife.edu.ng/index.php/ija/article/view/583
[16]. YAKUBU A., OLADIMEJI Y., HASSAN A., 2019, Technical Efficiency of Maize Farmers in the Kano State of Nigeria Using A Data Envelopment Analysis Approach, Ethiopian Journal of Environmental Studies & Management, vol. 12(2), pp. 136-140
[17]. *** FAO, 2020, Countries Profile: Nigerian Agriculture at glance. https://www.fao.org/countryprofiles/index/en/?lang=zh&iso3=nga
[18].*** FAO, 2021a, The State of Food and Agriculture (SOFA): Making agrifood systems more resilient to shocks and stresses. https://doi.org/10.4060/cb4476en
[19].*** FAO, 2021b, World Food and Agriculture: Statistical Yearbook 2021. https://doi.org/https://doi.org/10.4060/cb4477en
[20].*** FAOSTAT, 2020, Food Balance Sheet and Production, Available online: http://www. fao. org/faostat/en/# data
[21].*** FAOSTAT, 2022, Crops and livestock products (Production): Minor Revision. Available online: https://www.fao.org/statistics/en/
[22].*** FMARD, 2019, Food Crop Production and Harvested Area Statistics 2019. Available online: https://fmard.gov.ng/
[23].*** NBS, 2020a, Demographic statistics bulletin NBS Abuja, Nigeria
[24].*** NBS, 2020b, LSMS Integrated Surveys on Agriculture Nigeria General Household SurveyPanel, Wave 4 2018–2019, National Bureau of Statistics. Available online: https://nigerianstat.gov.ng/elibrary/read/1030
[25].*** NBS, 2021, Poverty and Inequality in Nigeria Report, In National Agricultural Outlook, Nigeria Bureau of Statistics, Abuja, Nigeria
[26]. *** NIPC, 2022, Opportunities in Agriculture: Agriculture Promotion Policy 2016-2020, Abuja, Nigeria: Nigerian Investment Promotion Commission Retrieved from https://www.nipc.gov.ng/opportunities/agriculture/#:~:text=Agricultural%20sector%20contributes%2025%25%20of%20Nigeria%E2%80%99s%20Gross%20Domestic,alongside%20livestock%20%281.7%25%29%2C%20fisheries%20%280.5%25%29%20and%20forestry%20%280.3%25%29
[27].*** Macrotrends, 2022, Nigeria Population Growth Rate 1950-2022, LLC Macrotrends.net Retrieved from https://www.macrotrends.net/countries/NGA/nigeria/population-growth-rate'>Nigeria Population Growth Rate 1950-2022. www.macrotrends.net. Retrieved 2022-05-15.
[28].*** World Bank, 2019, Global Economic Prospects, January 2019: Darkening Skies